Using The Mobile Application Evernote for Diagnostic Assessment to Enhance Foreign Language Proficiency

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Abstract: The diagnostic language assessment (DLA) is an important tool for instructors and, military linguists to enhance their language proficiency. The ultimate goal of this research project is to help military instructors use a twenty-first century tool to assess students' proficiency and provide recommendations to enhance students' language proficiency in order to meet mission requirements. However, the lack of technology used for DLA in the classroom settings is prevalent. Currently, all military instructors use the traditional tools of paper, sticky notes, memory notes and tape recorders for DLA. The purpose of this study is to develop and evaluate the effectiveness of a web-based instructional module that teaches military language instructors on Oahu to use the Evernote web applications to collect student's language proficiency data, and securely input and transfer the data to individual student folder for DLA. Sixteen participants took part in the two-hour web-based module. Comparing the pre and post surveys, after completing the learning module, 94% of participants preferred to use Evernote web 2.0 applications for DLA in the classroom and the attitude and comfort level on using technology improved. Increased skill and confidence, improved attitude, and positive participant responses showed that the chosen theories were applicable to development. The author discussed the effeteness of the module, areas for refinement, and suggested future implementation and contribution to the field of DLA.

Introduction

Diagnostic Language Assessment (DLA) is drawing a great amount of attention from professionals in the fields of second language acquisition (SLA) and applied linguistics (Anderson, Brunfaut, & Harding 2014). DLA is an essential tool to diagnose areas of strengths and needs in students (Alderson et el, (2014) that includes the gathering and careful evaluation of detailed data collected using student's knowledge and skills in specific learning areas and provides recommendations that will bring the learners to an enhanced the level of language proficiency in all modalities.

In order to meet the newly elevated Department of Defense (DoD) proficiency standards for military language professionals, military language instructors must be able to determine how well students are learning, gauge their proficiency, and measure the appropriateness of the content and effectiveness of the methods and technologies used in the classroom settings. Thus, DLA is an important tool for instructors and military linguists to enhance their language proficiency in order to meet national security mission requirements.

Classroom-based DLA that is used in a formative way has been shown to significantly benefit student learning through providing feedback on the status of student's conceptual knowledge and problem-solving practice and by informing decisions about subsequent instructional support (Black & William, 2009). Teachers need to take observation data during the process of assessment in the classroom context, with the aim of supporting teachers in decision making, such as deciding what forms of assessment are most appropriate for gaining information about learner's learning and measuring achievement (Airasian, 2005). To do so, instructors must keep records of their observation notes in each student's folder. Instructors are looking for new innovative ways to securely input their observation data, store it, and transfer it for further analysis.

As an instructor who conducts diagnostic assessments, the researcher has found that there is a need for a new diagnostic assessment tool. Typically, a Diagnostic Assessment (DA) specialist performs a DA with paper, pencil, and a voice recorder. The process takes several hours to collect a student's language proficiency data from the one-on-one DA format. As a common practice, an instructor observes student's proficiency, writes observations on sticky notes or paper, takes mental notes and records the class activities on a recorder are a common practice. However, these notes may be missed during the busy classroom instructional process, misplaced, confused, or forgotten. Consequently, instructors may be unable to update the student observation sheet that could cause them to fail in helping the students reach their full proficiency potential.

A solution of to these problems and challenges is using technological tools, like a mobile application for diagnostic assessment that helps and improve the instructor's ability to observe the student's proficiency during class hours. The observation would be more dynamic, meaningful, effective, time, money saving and manageable. Despite the pervasiveness of assessment in education today, few instructors receive much formal systematic training in assessment design and analysis (Shafer, 1993). This study was designed to help meet this need. The purpose of this instructional design project is to develop and evaluate a web-based instructional module for military language instructors to learn to use the Evernote mobile application as a data collection tool for assessing language proficiency.

Literature Review

Technology has the potential to play a powerful role in formative assessment practices that support the kind of learning favored by next generation standards and bolstered by cognitive science research-learning that focuses on integrated, conceptual knowledge

and problem-solving abilities in real world situations. In addition, technology can support a teacher's ability to build effective formative assessment features into classroom practice (Quellmalz, 2015).

Classroom-based assessment that is used in formative assessment may have shown to significant benefit student learning through providing feedback on the status of student's conceptual knowledge and problem-solving practice and by informing decisions about subsequent instructional support (Black & Wiliam, 1998). Moreover, technology-based, next-generation assessments are characterized by rich, complex, and authentic context; interactive, dynamic responses; individualized feedback and coaching to align, design, deliver, score and interpret deep understanding within a task-rich environment and in a feasible and cost-effective manner (Quellmalz, et al.2012). Through a mobile -based or web- based instructional design module, instructors will be able to learn how to collect and store information during class time so valuable information is retained. Evernote is a mobile application that would be able to meet these needs; an instructional design module provides an opportunity for instructors to learn the content of that mobile application at their own pace and practice using it in the classroom.

Mobile learning is a type of e-learning where smart mobile devices such as iPhone and iPad are used as means of content delivery due to their portability and affordability, these handheld portable devices have created radical changes in the way we acquire information, we socialize and we communicate. As a result of this new transformation of the way we learn, more and more companies are producing technological devices in portable form as people are becoming more accustomed to their use. “These devices are reshaping users daily lives in different ways” (El-Hussein, 2010). Mobile technology brings the impact of mobile learning on traditional pedagogical learning strategies. The advantage of mobile technology assists the development of "situated classroom" which is an augmented knowledge context environment pertaining to learner's daily life and the classroom is able to convey information between learners and teachers (Jeng et al., 2010.)

Teacher beliefs tend to influence teacher's general practice as well as their specific technology integration practice (Ertmer & Ottenbreit-Leftwich, 2010: Tondeur et al., 2008). As a part of teacher training as professional development programs, this instructional design module helps teachers to incorporate technology uses unto their practices that go along with these beliefs. In connection with this project, bring your own device (BYOD) theory is seen as a factor in implementing this instructional design module. Mobile learning is indeed a performance support tool can be used on the job (Forni & Holcombe 2013). The instructors should be able to learn module content on their mobile devices that will eventually be used to put what they learn into practice.

The learning module will be designed based on a self-directed learning theory that views the adults as fundamentally independent learners, able to take control of their own learning (American Institute for Research 2011). The learning module will be designed to include space repetition theory, which suggests, allowing enough time for the

information acquired to move from short-term to long-term memory (Forni & Holcombe 2013).

Module Development

The framework of " Evernote study" instructional design module was based on the Analyze, Design, Development, Implement, and Evaluation (ADDIE) theory. ADDIE's five phases represent a flexible, reflective, iterative, dynamic, and interactive guideline for building effective training. In the design phase of the Evernote study dealt with learning objectives, assessment instruments, exercises, content, subject matter analysis, and lesson planning and media selection. Additionally, Gagne's Nine Events of Instruction; gain attention, inform learners of objectives, stimulate recall of prior learning, present the content, provide "learning guidance", elicit practice, provide feedback, assess performance, enhance retention and transfer to the job, is also applied to the design of the Evernote study to promote a web 2.0 application on user's smartphone as a new technology for DLA.

Merrill's First principles of instruction "learning is promoted when learners recall existing knowledge and skills as a foundation for new skills" (Merrill, 2013) on the module development. Mayer's multimedia learning principles are applied to the management of cognitive load as it relates to the implementation of multimedia within Evernote instruction. Mayer's multimedia design theory is also applied to the Evernote design; these principles mentioned above, spatial and temporal contiguity and cognition are considered to enhance learning, for this, images and videos are placed near and at the same time as related text (Mayer, 2001).

The tool was selected through a tool scavenger hunt based on instructors' needs and the needs were analyzed by the following rubric. The rubric criterion for student classroom observation tool was: (1) data input, (2) file organization, (3) data transfer, (4) voice recording, (5) video recording, (6) platform, (7) price, and (8) mobility, anywhere and anytime you could collect data. (Figure1). The Evernote mobile application meets the seven criteria mentioned above and is compatible with laptops, desktops, mobile smartphones (Androids and iPhone), and it doesn't have any hardware issues. Following the selection of a tool, a learning module is designed.

Based on the research and information gathered in my literature review, the criteria for the learning module became: (1) easy to use user-friendly, (2) simple user interface, (3) accessible to users of all levels, (4) interactive include practice activity in each module (Gagne's Nine Event of instruction, 1992), (5) multimedia (multimedia learning principles, Mayer, 2001), (6) the ability for each student to learn at his or her own pace, and (7) Each module takes five to ten minutes to complete. Taking these factors into account, a website building platform was selected as the ideal format to deliver instruction. (Multiple inputs & representation, Universal Design Guidelines, UDL, 2008).

Methodology

Based on module design theories and tool selection for DA, the instructional goals were set as following. (1) Military language training faculty members will be able to use a web 2.0 application to assess student's proficiency. (2) Military language teaching faculty members will be able to integrate new technologies into teaching and learning. (3) Military language teaching faculty will be able to use the Evernote web application to enhance their students' language proficiency in order to meet the mission.

In the recruitment process, the researcher reached out to the participants in person and online. The online recruitment included identifying the MTC faculty members and the faculty was contacted via email with the recruitment flyer attached (Appendix A) that contained the link to the online module. Key objectives and goals and benefits, of this research study, were explained to MTC faculty members and an overview of the study was provided as well.

The initial recruitment targeted the civilian faculty members and was later expanded to military faculty members at MTC. A total number of nineteen participants participated in this research study; at the end, only sixteen of them completed the learning module, survey, and test. The participants ranged from newly hired to tenured faculty in professional ranking, varied from 30 to 64 years of age, and included both males and females. All participants were above the age of 30 with the largest group, 7 participants (44%) being the age group of 30 to 40. Participants included both military and civilian faculty of MTC. Educational levels varied with all participants having completed at least Bachelors degree in education. Participants that possess a Master's degree made up the largest group at 10 participants (63%) and All but dissertation (ABD) and Ph.D. made up the second largest at 4 participants (24%). The majority of participants' ethnicity is Asian at 14 participants (88%), and 2 (12.5%) participants are Caucasian. The majority participating in this research is civilian faculty, 13 participants (81%), with 3 military faculty members (19%) also participating in this research. The participants also varied in terms of familiarity with technology and its use in the classroom.

Participating faculty completed the learning module asynchronously and independently. Minimal assistance was provided in-person, for one participant who prefers face-to-face and step-by-step instruction. Participation in this study involved four tasks; completing a pre-survey, reviewing a web-based instructional module, and completing a post-test and a post-survey. After accessing the online module and indicating consent (Appendix B), participants completed the pre-survey that included 17 questions regarding demographics, technology use, comfort level, attitudes and present teaching practices (Appendix C). Participants then reviewed the learning module (website) that consisted of four lessons: (1) Introduction of Evernote application, (2) How to use Evernote, (3) How to collect data and what to collect and, (4) How to transfer the collected data into individual folders for analysis.

Finally, participants finished a post-test that included 17 questions to assess post-knowledge and the effectiveness of the instructional design module (Appendix D) and completed a post-survey that included 18 questions to gather information regarding satisfaction, comfort, attitudes, and feedback about module design (Appendix E). A pseudonym was created and used for matching the participants' pre and post

information. Participants were instructed to use the same pseudonym on each pre and post-survey and tests completed for data matching purposes. The embedded self-check tests' results were collected to compare with the post-test result.

A total of 21 individuals participated in this research study, but 16 participants out of the 21 finished the entire module. For the five participants who didn't complete whole learning module, surveys and post-test were excluded from this research study. A total of 16 adults, 7 females and 9 males completed all requirements, the signed consent form, a completed pre-survey, finished all learning modules, implemented Evernote, and completed post-survey, embedded practice test, and post-test.

Pre and post data were collected via online surveys and tests. After the participants completed the module, pre and post data were received via email and compiled to the researcher's hawaii.edu. All data from surveys and test were transferred, analyzed and compared using Microsoft Excel (Appendix F). The initial data analysis included decoding the participants' responses based on the type of scale used in each question. For instance, Likert agreement scale was coded five for strongly agree or excellent to one for strongly disagree or poor. Pre and post data were later compared based on participant comfort, likelihood, and age range. Graphic charts and other visuals were used to display results.

Participants took approximately one to two hours to go through the module and complete the surveys and tests. However, participants were given a one-week period to complete the study based on the space repetition theory. The questions in the module included multiple choice; open-ended, and various Likert type questions. The Likert type responses were based on agreement, likelihood, and comfort scales. Data from pre and post-survey responses regarding comfort and attitudes were compared to measure faculty's overall comfort using technology and their attitudes towards using new technologies for student assessment particularly Evernote. Data from pre and post-survey responses were also used to analyze faculty' comfort using technology and likelihood to use Evernote application based on the participants' age range.

The purpose of comparing pre and post-attitude responses was to measure faculty's willingness to implement new technologies in teaching and learning after completing the module and their attitudes towards the current assessment tools used. Data were compared and analyzed to evaluate the effectiveness of the learning module in changing faculty's attitudes towards using new technologies in teaching. The pre and post-surveys and tests were based on the performance objectives and what learners needed to know to successfully implement Evernote application. Data from post-survey responses regarding satisfaction, quality of information, engagement and module ease of use and design were analyzed to examine the faculty overall satisfaction regarding the module. Other items in the pre and post-surveys such as demographic information, teaching practices, and faculty learning preferences were analyzed and added to the results and discussion sections.

Results

On the pre-survey, the participants were asked about the use of Evernote on attitudinal information, 10 participants (63%) responded that they heard about Evernote application but don't use it, 3 participants (19%) said never heard about it. 2 participants (13%) use Evernote sometimes; only 1 participant (3%) use Evernote regularly. Currently, rarely anyone uses Evernote for diagnostic assessment. On a retrospective question, comparing pre and post survey about Evernote likeliness, only 6 participants (38%) said they "likely use" Evernote for DA on the pre-survey, but 15 participants (94%) said they "absolutely use Evernote" for DA on the post-survey. The number is increased from 6 participants, 36%(likely use) to 15 participants, 94%(absolutely use); likeliness of Evernote use improved by 94% from 0 % to 94% (Table 1).

Table 1. Usage and likeliness of Evernote

Usage & likeliness of Evernote on Pre-survey	
Usage of Evernote	
Response	Percentage
Heard about Evernote, but don't use it	10(63%)
Never heard of Evernote	3(19%)
Sometimes use Evernote (personal purpose)	2(13%)
Use it regularly (personal purpose)	1(6%)
Use Evernote for DA	0(0%)
Evernote likeliness on Pre-survey	
Very unlikely or unlikely to use Evernote	6(38%)
Neutral	4(24%)
Likely use Evernote	6(38%)
Usage of Evernote on Post-survey	
Will use it for DA	9(56%)
Will use it & Traditional both	6(38%)
Will use the traditional method	1(6%)

To check the comfort levels with technology, participants were asked what types of devices participants use. Participants could select at least one option: desktop computer, laptop computer, tablet, and smartphone. Of the 16 participants, all 16 participants (100%) responded that they use at least one device, 11 participants (69%) answered that they use all four devices, laptop, smartphone, tablet, desktop: and 4 participants (25%) said they use three devices, laptop, smartphone, tablet. (Figure1). Laptop and smartphone are tools participants' use in their daily life. Use of smartphones for educational purposes support "These devices are reshaping users daily lives in different ways" (El-Hussein, 2010) and making the advantage of mobile technology assisting the development of "situated- classroom" possible, which is an augmented knowledge context environment pertaining to learner's daily life and the classroom is able to convey information between learners and teachers (Jeng et al., 2010.) 14 participants (88%), 8 male (50%) and 6

female instructors (36%) responded that they use technology often in teaching. 2 participants (12%) responded that they seldom use technology.

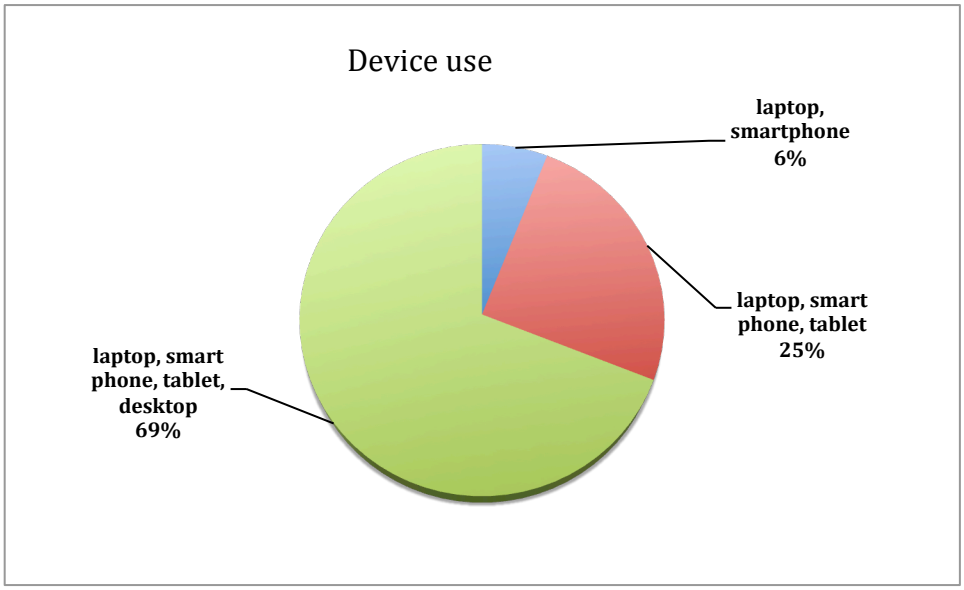


Figure 1. Devices the participants' use

The participants' computer literacy was within the average range. The majority of the participants, 11 participants (69%) responded that they have an average computer skill that included sending emails, using software programs and creating Word/PowerPoint documents. The 5 male participants (31%) reported that they possessed advanced computer skills and considered themselves computer experts, No female faculty responded that they possessed advanced computer skills but 7 female participants (44%) and 4 male participants (25%), total 11 participants (69%) responded that they have average computer skill level. These survey results explained that they pertained workable level of computer skills (average level) for job requirements or for daily work. The researcher doesn't find that gender plays any role on computer skill level. No participants responded that they are novice or beginners. (Figure 2)

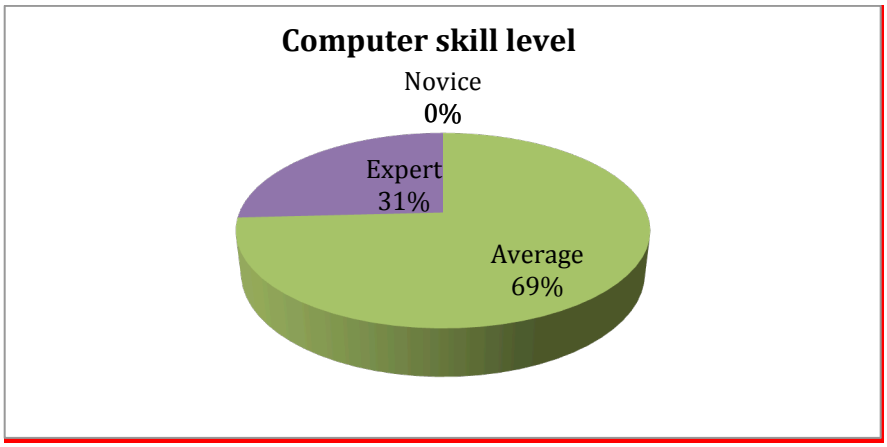


Figure 2. Computer skill levels

Data from pre and post-survey responses were compared to measure faculty's overall comfort using technology and their attitudes towards using new technologies for student's assessment particularly Evernote. On pre-survey, 7 participants (44%), 6 male and 1 female, responded that using technology in the classroom is very comfortable and 9 participants (56%) expressed that they are somewhat comfortable. On post-survey, 11 participants (69%) responded that they are very comfortable using technology in the classroom; and 5 participants (31%) remain same, somewhat comfortable. 4 participants (25%) feel more comfortable after taking the Evernote learning lesson and switched from somewhat comfortable to very comfortable. This survey result showed that computer skill levels and comfort levels are correlated; 11participants (69%) with high computer skills (above average) responded that they are not only very comfortable using technology but also use technology very often in the classroom. The findings strongly support that teacher beliefs tend to influence teacher's general practice as well as their specific technology integration practice (Ertmer & Ottenbreit-Leftwich, 2010: Tondeur et al., 2008).

Data from the pre-survey's question about the number of technology-based training programs they took in the last year, either online or face-to-face, 5 participants (31%) responded that they had more than 5 technology-based training events, 6 participants (38%) responded that they had 3-5 times, 2 participants (13%) said that they had one, 1paticipant (6%) said that never had any technology based training in last year. Participants with average computer skill and had 3 -5 training events in last year responded "somewhat comfortable" using technology. This survey showed 1) Participants with more training showed higher comfort level of using technology in the classroom. 2) Participants with higher computer skill and 3 or more training events responded "very comfortable" using technology in the classroom. 3) The computer savvy, experts 5 participants (31%) responded, 'very comfortable" using technology in the classroom regardless the number of training events. On a retrospective survey about the comfort level of using technology, 7 participants (44%) said "very comfortable" on pre-survey, after finishing Evernote learning lessons, 11participants (69%) said that they are very comfortable using technology on post-survey. The comfort level was improved by 25%.

The majority of participants responded that technology would play a great role in education directly and indirectly in the future and they aware and understands the importance of technology application and the need of technology in the classroom. In regards to 10 participants (63%) responded what do you think about the role of technology in education in the future it would reshape the foundation of education in the future and 5 participants (31%) responded that technology would give some influence on education in the future. The results explained that 15 participants (94%) understand and are aware of that the important role of technology in education while other 1participant (6%) counts technology as simply a tool.

Table 2. The role of technology on education in the future

What do you think about the role of technology on education in the future?

Responses	Percentage
Technologies will reshape the foundation of education	10(63%)
Technologies will have some influence on education	5(31%)
Technologies will bring convenience as tools for education	1(6%)

The initial post-test mean scores showed that the participants received high post-test scores overall; however, when post-test data were analyzed based on the participants', the findings showed a difference in faculty's post-test responses. Those with higher computer skills and a higher comfort levels using technology in the classroom scored higher with an average test score of 96% out of 100%, compared to average computer skills with somewhat comfortable group whose scores averaged 87.8% out of 100%, and 8 participants (50%) male instructors scored 100% while 3 participants (19%) female instructors scored 100% as shown in (Figure 3).

11(69%) of the participants (P1, 2,3, 4, 5, 7,9.10, 14,15,16) scored 100 % on post-test, and they also scored 100% on embedded tests. The 5(31%) male instructors who claimed computer savvy are included with this group. Let's look closely at what attitudes they have on technology. 11participants (100%) of them said that "technology makes learning more interesting, and they use technology very often", and 10 participants (90%) of them said technology would reshape the foundation of education in the future. This result explained that people who use technology very often enjoy technology-assisted learning have a higher comfort level and higher competency. They scored 100%, higher than the others on post and embedded tests (Figure 3).

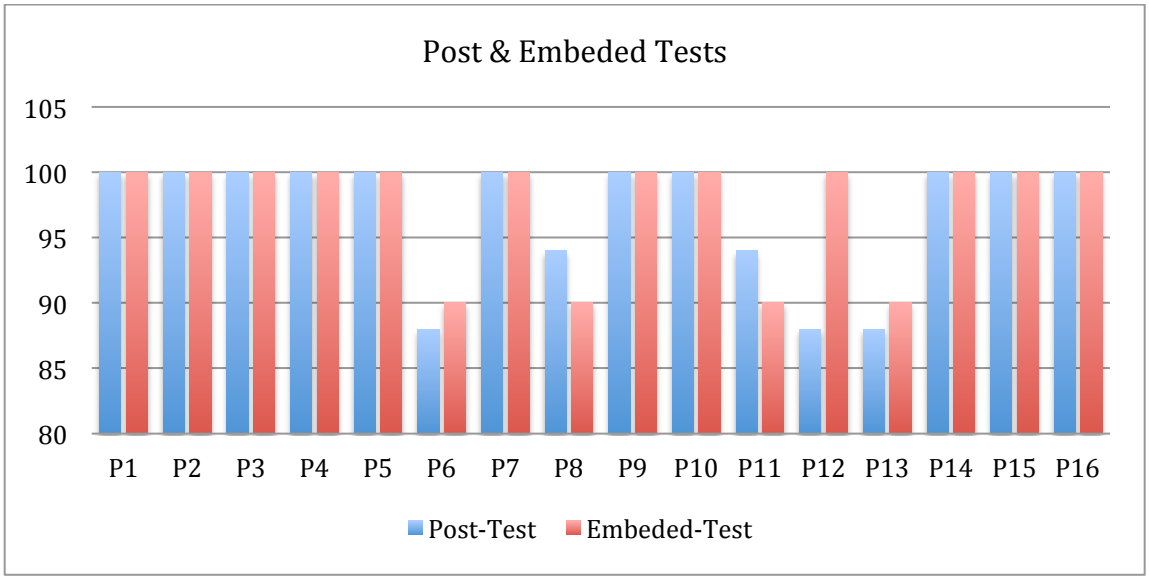


Figure 3. (*n=16*) Post vs. Embedded test scores

The following statements outline the challenges of using new technology for DLA and the solutions for those challenges. The majority of the participants answered that the most difficult challenges for instructors adopting new technologies are; lack of 1) time, money, enthusiasm, motivation, attitude, willingness, skills, 2) openness to change, 3) time to practice and apply it to classroom, and not have enough time to absorb technology and not have enough time to integrate new technology into classroom practice 4) the ability of instructors to be in tune with current technological advances and maximizing their use in the classroom. (Table 3)

To overcome these challenges, 1) the instructors need more training through professional development, 2) MTC needs to provide proper training to the staff for new technology implementation at the workplace, 3) MTC should give instructors enough time to practice, 4) MTC should help instructors to keep up to date with fast-pacing technological changes, 5) with the information technology (IT) team's supports, instructors need help to overcome technological glitches while they use those apps or tools (Table 3).

Table 3. The challenges for the instructors to adopt new technologies

What is the most difficult challenge for instructors to adopt new technologies?
Factors
Category 1. Personal issues
Time, money, enthusiasm, motivation, attitude, willingness, skills and openness to change.
Take time from the busy teaching schedule, need time to practice and apply it to classroom.
Not have enough time to absorb technology.
Integration new technology into classroom practice.
The ability of instructors to be in tune with current technological advances and maximizing their use in the classroom.
Category 2. Trainings, professional developments
Lack of professional development on technology.
New technology implementation at work place without proper training to the staff or enough time given.
Technological glitches while using those apps or tools.
Keeping up with the fast-pacing tech changes.

The initial results regarding the module constructs show that most of the participants agreed that the learning module was easy to use, informative, and engaging as noted in table 4 below. The learning quality construct rating was higher with an average of (4.5) agree compared to the ease of use construct mean (4.0). The participants reported that the learning module provided quality information that helped them learn about Evernote (100%). The majority of the participants (94%) reported that the learning module was engaging; all constructs were rated an average rating of 4.5 (Table 4).

Table 4. The overall rating on Learning Module

Evernote module evaluation	
Category	Average
Ease of Use	
Directions are easy to follow	4.5
Surveys/test are easy to fill out/ answer	4.6

Module was easy to use	4.5
Learning Quality	
The multimedia in the module was helpful for your learning	4.6
Module has helped me understand how to use Evernote	4.6
I feel more like knowledgeable about Evernote data collection system	4.5
How would you rate instructional content of the modules?	4.5
Engagement	
I felt that the learning module was engaging	4.5
The length of each section in the module was manageable	4.6
Web-based learning/ Technology used learning	
The use of technology made learning more interesting	4.5
Rate the web- based/ online learning	4.5

According to Likert scale, the overall rate of Evernote module got 4.5 from 5.0 highest. It proves the effectiveness of Evernote modules and shows that web-based and technology-assisted learning are very effective to MTC faculty members. The most of the participants were satisfied with the learning module as shown in figure 13 below. 4 participants (25%) reported that the learning module was very good; the majority of the participants 10 participants (63%) indicated that it was excellent, 2 participants (12%), reported that it was good. The majority of the participants 10 participants (63%) responded that their web-based learning experience was excellent, 4 participants (25%) of the participants responded their learning experience was great and 2 participants (12%) said it was good (Figure 4). An open-ended question about how the participant feels regarding learning new information on the web-based module, the participants answered many positive feedbacks such as the module was convenient, easy, useful, effective fast, flexible, more interesting, time-saving, self- paced and easy to go back to find necessary information.

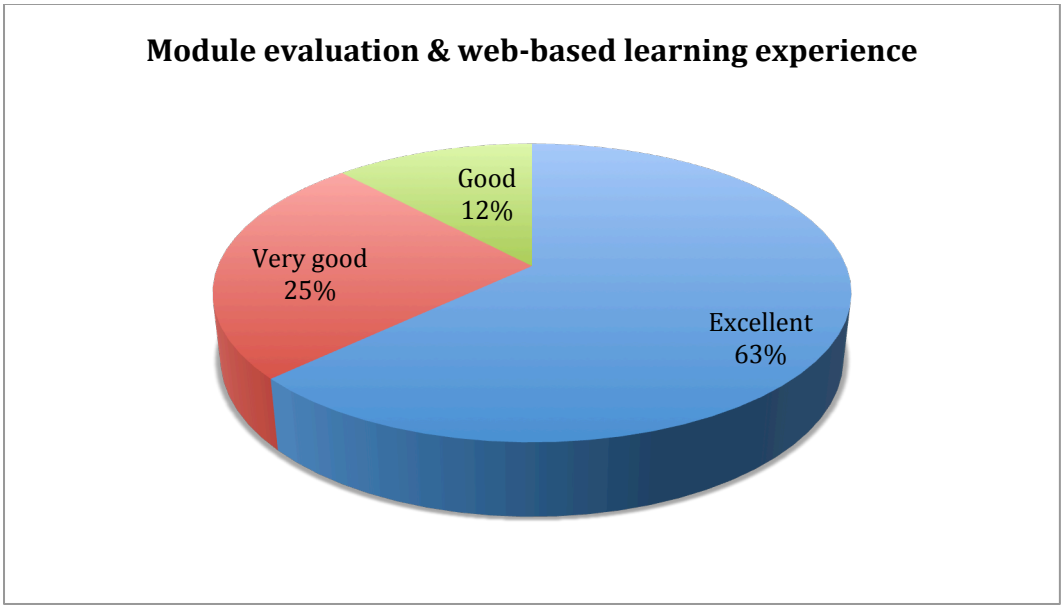


Figure 4. Module evaluation and web-based learning satisfaction

There are also concerns about the learning module, 2 participants (13%) said that it took more than 2 hours to finish it, and 3 participants (19%) responded that some of the pictures in the text- heavy portions on the module were distracting, making the text hard to read. If the pictures were removed or relocated, it would make it less distracting and eases to read.

4 participants (25%) expressed about Evernote logos' different locations on Androids and IPhone screen. The instructional Youtube videos on the learning module are created for Android phone users, but are confusing for IPhone users and may affect their Post - test results. The instructional Youtube videos for iPhone users will be added to the module in the future.

5 participants (31%) are concerned about Evernote's visual note, camera function. MTC is not allowed to take any identifiable pictures of the facility, classroom, students, and instructors. Since the top priority of MTC is information security, an urgent creation of security guidelines is a must and needs to be worked with the MTC.

Discussion

Regardless of the good qualities of the module, several identifiable limitations were discovered in the study process. Due to the individual participant's lack of openness to change, enthusiasm, motivation, willingness of time & money investment, attitude, participant's daily busy teaching schedule, other workloads, and the participant's tiredness, they were indifferent or became an obstruction. There are gaps between learning new technology and applying it in real life. Even those who claimed to be computer savvy were reluctant to apply newly learned technology to the classroom unless their awareness urgent needs were met.

Like the majority of educational development projects, I have, as a core objective, the need to disseminate the outcomes of my project to a particular community or communities. This will only be achievable and successful if, from the outset, every member of my project has a shared understanding of exactly what it is I want to disseminate and why. One of the difficulties of projects of this nature is that the project developer usually understands what they are trying to achieve but the target audiences don't. This may seem hard to believe but there is plenty of evidence to demonstrate an inability to articulate clear and easily understood language, what portraying my project is about and what it offers to a particular target audience.

I realized that it is important that my dissemination activities or plans should be an integral part of my project plan. This means that I need a plan for dissemination from the outset. The planning and development of my dissemination strategy must have equal importance placed on it as the other preparatory work I will be doing, or have already done.

Conclusion

Overall, this study project's primary objective was to introduce new DLA technology to MTC faculty to enhance student's language proficiency and measures the appropriateness of the content and effectiveness of the methods and use technologies for Diagnostic Language Assessment (DLA) in the classroom settings. This project was also sought to support MTC faculty in transitioning their teaching approach to a 21st-century technology based data collection for DLA to provide the best training to military linguists for enhancing their language proficiency. Based on the research findings, the learning module was not only effective in improving faculty comfort using technology and willingness to use new technologies for DLA, but it was also effective in instructing faculty on how to use Evernote application for secure, precise data collection.

Yet, future research studies are needed to examine the impact of training delivery modes/types on faculty comfort, attitudes, and likelihood to implement new technologies in the classroom for DLA and teaching. This project was meant to provide training to all faculty members within the MTC on how to integrate emerging technologies in real life. This project helps them collect students' proficiency data, help them determine how well students are learning, gauges their proficiency and measures the appropriateness of the content and effectiveness of the methods used in the classroom settings. DLA module used in classroom settings worked as an ideal solution for the challenges of traditional DA because DLA module shows and demonstrates more dynamic, meaningful, effective, time & money saving approaches, that brings significant benefit to student learning.

Despite the pervasiveness of assessment in education today, few instructors receive formal systematic training in assessment design and analysis (Shafer, 1993). The Evernote study is a web-based training and it is one of the approaches for this need. This learning module provided MTC faculty with a convenient learning opportunity to not only embrace a new era of technologies to enhance teaching and learning, but also to help the military language instructors to accomplish the missions and goals to enhance students' proficiency for the national security of the nation. The researcher believes that the way he tried to apply " Evernote, web 2.0 application for DLA is an example of following U.S. Army Training and Doctrine Command's (TRADOC) training guideline.

The Commanding General U.S. Army Training and Doctrine Command (TRADOC), Martin, E, Dempsey said in 2015 "the Army Learning Concept 2015 is an important component of our effort to drive change through a campaign of learning. It describes the learning environment we envision in 2015. It seeks to improve our learning model by leveraging technology without sacrificing standards so we can provide credible, rigorous, and relevant training and education for our force of combat-seasoned Soldiers and leaders. The Army must continually adapt to changing conditions and evolving threats to our security." (TRADOC Pam 525-8-2)

References

Airasian, P. (2005). *Assessment in classroom*, New York, McGraw-Hill.

Alderson, J. C, Brubfaut, T., & Harding, L. (2014). Towards a theory of diagnosis in ` second and foreign language assessment: Insights from professional practice across diverse fields. *Applied Linguistics*. Doi: 10.1093/aaplin/amt046

Bilberglitt, M. D. (2012). 21st century dynamic assessment. In J. Clarke-Midura,

Black, P., & Wiliam, D. (1998). *Inside the black box: Raising standards through classroom assessment*. London, UK: King's College.

Black, P., & Wiliam, D. (2009). Developing the theory of formative assessment. Educational Assessment, *Evaluation, and Accountability*, 21, 5–31.

Eartmer, P. A., & Oteenbreit-Leftwich. A. T. (2010). Teacher technology change: how knowledge, beliefs, and culture intersect. *Journal of Research on Technology in Education*, 42(3), 255-284.

El-Hussein, M. O. M., & Cronje, J.C. (2010). Defining Mobile Learning in the Higher Education Landscape. *Educational Technology & Society*, 13(3), 12–21.

Ferenchick, G., Solomon, D., Foreback, J., Towfiq, B., & Mohmand A (2013) Mobile Technology for the Facilitation of Direct Observation and Assessment of Student Performance, *International Journal of Teaching and Learning in Medicine*, 25(4), 292-299.

Forni, K., & Holcombe, C. (2012). *61 Tips on mLearning: Making learning mobile*. Santa Rosa CA: The eLearning Guild.

Forni, K., & Holcombe, C. (2013). *62 Tips on effective e-learning instructional design*. Santa Rosa, CA: The eLearning Guild.

Jeng, Y. -L., Wu, T. -T., Huang, Y-M., Tan, Q., & Yang, SS. J. H (2010) The Add-on Impact of Mobile Applications in Learning Strategies; A Review Study, *Educational Technology & Society, 13 (3), 3-11.*

Mayrath, M., & Dede C, (Eds.), Technology- based assessment for 21st century skills: *Theoretical and practical implications from modern research*, 55-89. Charlotte, NC: Information Age Publishing.

Quellmaz, E. S., Timms, M. J., Buckley, B. C., Davenport, J., Loveland, M., & S

Quellmaz, E. S. (2015. August). Technology to support next-generation classroom formative assessment for learning. *WestEd*, 1-15.

Shafer, W. D. (1993). Assessment literacy for teachers. *Theory into Practice*.vol. 32, 118-126.

Tondeur, J., Hermans, R., van Braak, J., & Valcke, M. (2008). Exploring the link between teacher's educational belief profiles and different type of compare use in the classroom. *Computers in Human Behavior*, 24(6), 2541-2553.

Appendix

[Appendix A] Recruitment Flyer

UHM LTEC Program, Mr. Jay Ka is conducting a research study

Mr. Jay Ka would like to invite you to participate in a research study

'Using a Mobile Application for Diagnostic Assessment to Enhance Foreign Language Proficiency'

Department of Defense (DoD) proficiency standards for military language professionals are elevated and military language instructors must be able to determine how well students are learning, gauge their proficiency, and measure the appropriateness of the content and effectiveness of the methods and technologies used in the classroom settings, thus diagnostic language assessment (DLA) is an important tool for instructors to military linguists to enhance their language proficiency. The ultimate goal of this research project is to help military instructors use a 21 century tool to assess student's proficiency and provide recommendation to enhance students' language proficiency. The purpose of this study is to develop and evaluate a web-based instructional module for military language instructors on Oahu on how to use the Evernote web application to collect student's language proficiency data, and securely input and transfer them to individual student folder for diagnostic assessment. To study the lessons will take about two hours and you have two weeks to complete this learning module.

Participants will go through an online learning module (website) that consists of four lessons. Any data from your participation in this study will be used only for this instructional design study. The results of the study are confidential and will not be available to the public. The study will take place at The Military Training Center (MTC). The director of MTC approved this research, so you don't need to get an approval form your supervisor for participation in this research.

To learn more about the study, please contact Mr. Jay Ka at jay.ka@hawaii.edu

Module link: http://www.evernotefordiagnosticassessment.net/

[Appendix B] Consent Form

Consent to Participate in Research

Using a Mobile Application for Diagnostic Assessment to
Enhance Foreign Language Proficiency

My name is Jay Ka and I am a graduate school student in the Department of Learning and Technology (LTEC) at the University of Hawai'i at Manoa and a military instructor working for U.S. Army Training Doctrine Command (TRADOC). As a fulfillment of my Master's program, I am conducting a research project. The purpose of this instructional design project is to develop and evaluate a web-based instructional module for military language instructors on Oahu on how to use the Evernote web application to collect students' language proficiency data, and securely input and transfer them to individual student folders for diagnostic assessment. Evernote is a free 2.0 web-based data collection system that requires download, create an account, anywhere, anyplace, and anytime. The ultimate goal of this research is research project is to help our faculty use a 21century technology tool to assess student's language proficiency and help students to enhance their language proficiency in order to meet mission requirements.

Participation in this research project is voluntary. You will be asked to participate in this study. You are at least 18 years old, a Training Doctrine Command (TRADOC) faculty member at Schofield Barracks, Hawaii. The project requires you to have access to a laptop or iPhone, as it will be used to access the learning modules online.

Project Description- Activities and Time Commitment

Participation in this research study will involve four tasks: completing a pre survey, reviewing an instructional module on a website, and completing a post-test and a post survey. Participants will start with the pre survey that includes questions requiring demographics, attitudes and present practices. Participants will go through an online learning module (website) that consists of four sections. The first section provides information on how to register, create, and log in to the Evernote teacher account. The second session includes information on how to use four Evernote functions (handwriting note, text note, audio note and visual notes) and collect data. The third session include information on how to transfer the collected data to individual folder for further analysis. The fourth session includes what to collect in the classroom. Finally participants will complete a post- test and a post survey to complete this study.

Benefits and Risks:

The benefits of participating in this research project include learning to use an innovative 2.0 mobile application in your classroom, and how to evaluate your students' proficiency through collecting data by using Evernote application in real-time for analyze the collected data latter. There are no risks involved in participating in the study as long as you keep operation security (OPSEC) regulation. This study is directly related to TRADOC missions.

Voluntary Participation:

Participation in this research project is strictly voluntary. You can, at any time, opt out of participation by simply notifying the researcher. Your opting out will not incur any penalty or loss of benefits.

Confidentiality and Privacy:

Any data from your participation in this study will be used only for this instructional design study. The data will be securely housed on a password- protected computer. During presentation of the results of my research project, I will not use your name or any other identifying information. The recordings from this study will be transcribed to find correlations between participants. Upon conclusion of research, all recordings will be destroyed.

Right to Ask Questions:

Please contact Jay Ka (Researcher) at jayka@hawaii.edu or at (808) 772-7596 with questions or concerns about this study. For any other questions or concerns you may have, please contact my advisor, Dr. Catherine Fulford at fulford@hawaii.edu. If you have any question about your rights in this project; you can contact the University of Hawaii, Human Studies Program, by phone at (808) 956-5007 or by e-mail at uhirb@hawaii.edu.

Statement of Consent:

I have read and understand the above information, and agree to participate in this instructional design study, "Using a Mobile Application for Diagnostic Assessment to Enhance Foreign Language Proficiency".

I understand that I can change my mind about being in the project at any time by notifying the researcher. My signature below indicates that I agree to participate in this research project. (You can visit the following webpage and electronically submit this consent form.)

_____

Print name

_____

Signature

_____

Date

Webpage link: http://www.evernotefordiagnosticassessment.net

[Appendix C] Pre survey

- The survey includes 17 questions, a free response section, which asks the user for ad-hoc, immediate comments on the instructional module.

Pre-survey

This Pre-survey is designed to gather background information regarding demographics, attitudes, technology use and teaching practices for the study purposes only, and it is not meant to assess your individual performance Please complete this survey before you go through the instructional module. Please create a fake name and use it for all surveys/tests.

1-What is your age range?

- Under 30
- 30-40
- 41-50
- 51-60
- 61 and over

2-What is your gender?

- Male
- Female
- I prefer not to answer

3-Please specify your Ethnicity

- White
- Hispanic or Latino
- Native American or Native Hawaiian
- Black or African American
- Asian
- Pacific Islander
- Other
- I prefer not to answer

4-What is your highest education level? Check all that apply

- Bachelors
- Masters
- ABD
- PhD
- Other

11-How comfortable are you using technology in the classroom?

- Very comfortable
- Somewhat comfortable
- Somewhat uncomfortable
- Very uncomfortable

12-How likely would you use Evernote in your classroom?

- Very likely
- Likely
- Neutral
- Unlikely
- Very unlikely

13 -I prefer to learn new information in

- Face-to-face group settings
- Online
- One-on-one tutoring
- Not sure

14-Have you attended a technology-based training program either online or face-to-face in the last year?

- Never
- Only once
- 3 to 5 times
- More than 5 times

[Appendix D] Post test

- The survey includes 17 questions, a free response section.

Post Test

This post-test is designed to assess the effectiveness of this instructional design module, and is not meant to assess your individual performance. Please enter the fake name you created in pre-survey. (the key is underlined)

1- A Evernote is…...

- An operating system
- A mobile game
- A hardware
- A mobile application

2-Which of the following devices teachers can use to access Evernote?
(Select all that applied)

- A smartphone
- A Laptop
- An IPad
- Desktop computer
- All of the above

3-To create an Evernote account, teachers will need

- Phone number and email address
- Email address and password
- Username and email address
- Full name and password

4-To sign in to Evernote account, users need

- Full name and a password
- Username and a password
- Email address and a password
- Username or email address and password

5- To access the Evernote features using your smartphone, you need to

- Press Menu +button on the bottom of the screen

13- To email student observation data, teachers need to

- Press option button then click share
- Press option button and email copy
- Press option button and click setting
- Press option button and add shortcuts

14-Can teachers securely share student observation data to their Google drive account?

- Yes
- No

15- What instructor absolutely shouldn't do in or outside of the classroom?

- Taking picture of students classroom activity
- Taking pictures of students
- Taking picture of classroom
- Taking picture of instructor
- All of above

16- What is the best way of collecting of student' proficiency data?

- Use all Evernote functions appropriately
- Use Evernote text note efficiently
- Use Evernote audio note efficiently
- Use Evernote visual notes effectively

17-In your point of view, what is the overall purpose of Evernote mobile application?

[Appendix E] Post survey

- The survey includes 18 questions, a free response section and also includes retrospective questions to compare Pre & Post survey results.

Post Survey

The post survey is designed to gather post study information regarding overall satisfaction, attitudes and feedback about the design module; and is not meant to assess your individual performance, Please enter your fake name you entered in post-test

1-The instructional design module was easy to use

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

2-The directions in the module were easy to follow

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

3-The survey and tests were easy to fill out

- Strongly agree

13-After completing the module, how likely would you use Evernote to record student observation?

- Definitely
- Probably
- Neutral
- Probably not
- Definitely not

14 - After completing the module, what are your impressions regarding learning new information online?

15-How would you rate web-based learning module

- Excellent
- Very good
- Good
- Fair
- Poor

16-What did you find particularly useful about the module?

17-What did you find particularly not useful about the module

[Appendix F] Excell spreadsheet for data collection

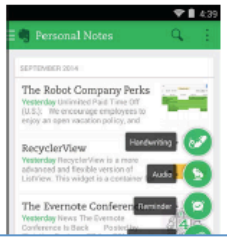
Fake Name	1.What is your age range?	2. What is your gender ?	3. Please specify your ethnicity ?	4. What is your highest education level ?
Michael Jackson	41-50	male	Asian	Masters
John Kennedy	61 and above	male	Asian	Masters
Jake Erwin	30-40	male	Asian	Bachelors
Sean Waynewright	30-40	male	white caucasian	other
Jeffrey Kang	51-60	male	white caucasian	ABD
Go Hawaii1	41-50	male	Asian	Masters
Kame Hameha	30-40	male	Asian	Masters
White man	30-40	male	Asian	Bachelors
Waren chen	30-40	male	Asian	Masters

8. How computer literate do you consider yourself ?	9. How often do you use technology in your classroom?	10. Which of the following technologies you currently use to collect data of your students proficiency?	11. How comfortable are you using technology in the classroom ?
Expert, computer savvy	very often	paper, paper, sticky note	very comfortable
average+-words,PPP,email, use softwares	very often	paper, paper, sticky note	very comfortable
Expert, computer savvy	very often	paper, paper, sticky note	very comfortable
Expert, computer savvy	very often	paper, paper, sticky note	very comfortable
Expert, computer savvy	seldom	I don't use any technologies, paper, paper, sticky note	very comfortable
Expert, computer savvy	very often	paper, paper, sticky note	very comfortable
average+-words,PPP,email, use software	very often	memory note	very comfortable
average+-words,PPP,email, use software	very often	memory note	very comfortable
average-words,PPP,email, use softwares	often	I don't use any technologies, paper, paper, sticky note	very comfortable

Module sample

Lesson 2 -1 Handwriting note

we will teach you step by steps instruction how to use "Handwriting" feature on Evernote and how to save the handwritten notes on Evernote



Handwriting notes on Evernote

1. Turn on your phone.

2. Find the Evernote application and click on it to open.

3. Wait a few seconds for it to load.
4. Click the tiny **green +plus button (in the circle)** on the top right-hand corner to create a handwriting note.

5. Click in the body of the **Handwriting (a pen in the green circle)** to activate the handwriting functions.

6. Draw or handwrite what you want to note.

7. Click on **"green V check mark button in the green circle "** on top left corner of your smart phone screen. if you accept the handwriting note.

8. Hit the tiny **"done"** button in the top left-hand corner of the screen.

Aloha and welcome to our learning lesson 4

The purpose of this learning module is to help you learn what to observe, what to collect for diagnostic assessment(DA). The collected data will be transfer to individual folder for analysis to provide a recommendation to enhance the student's proficiency(Bloom's taxonomy Higher Level). We would like you to complete Lesson 1,2,3 before you begin navigating the learning lesson 4.

Lesson 4 What to collect

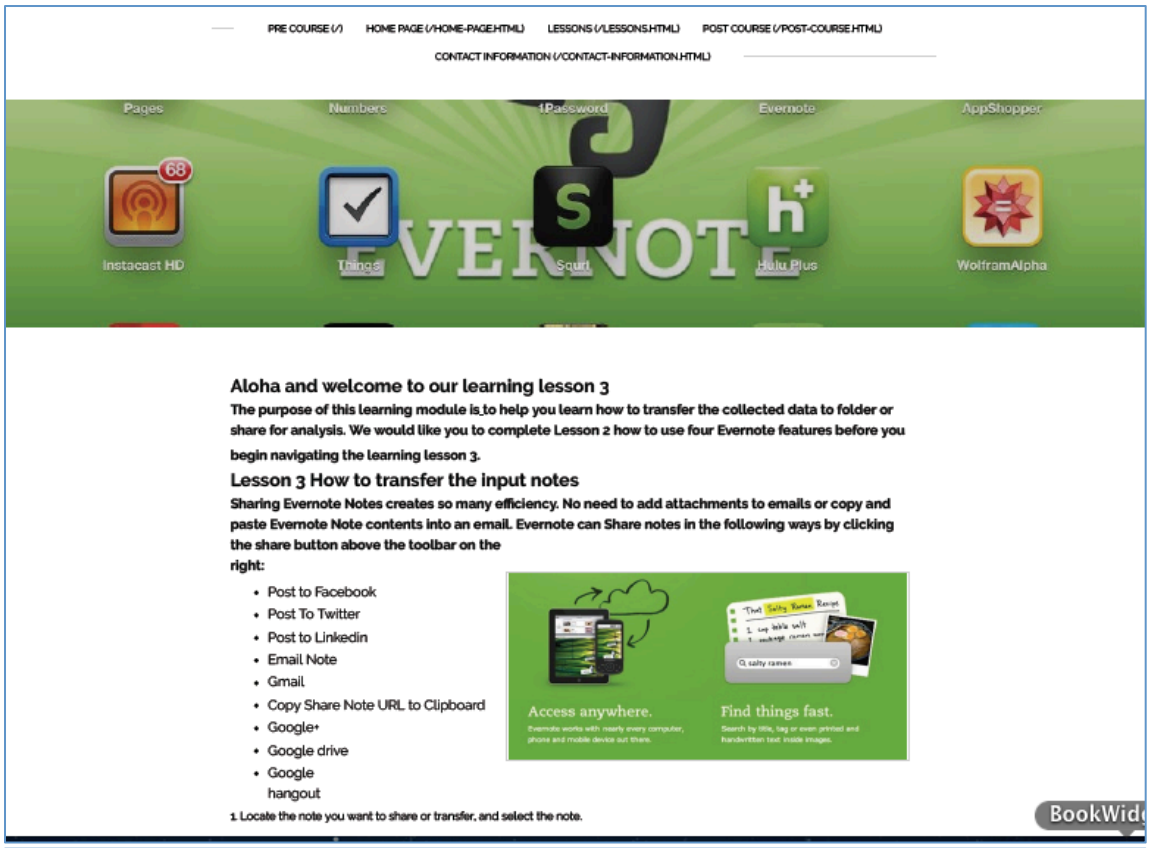
Handwriting note- take notes by handwriting

Collect usage of -Tense /word choice/ grammar pattens/ sentence structure/ word order/ conjunction/cohesive devices/ markers.
From - Essay/journal/ Homework sample/ classroom activities/ presentation materials, discussion, debates.

Bloom's Taxonomy with Technology Top of pyramid is higher proficiency

Text note - take notes by typing

Collect usage of -Tense /word choice/ grammar/ sentence structure/ word order/ conjunction/cohesive devices/ markers.
From - Essay/journal/ Homework sample/ classroom activities/ presentation materials, discussion, debates.


PRE COURSE (/)
HOME PAGE (/HOME-PAGE.HTML)
LESSONS (/LESSONS.HTML)
POST COURSE (/POST-COURSE.HTML)
CONTACT INFORMATION (/CONTACT-INFORMATION.HTML)
Pages
Numbers
1Password
Evernote
AppShopper
Instacast HD
Things
Squri
Hulu Plus
WolframAlpha
EVERNOTE
Aloha and welcome to our learning lesson 3
The purpose of this learning module is to help you learn how to transfer the collected data to folder or share for analysis. We would like you to complete Lesson 2 how to use four Evernote features before you begin navigating the learning lesson 3.
Lesson 3 How to transfer the input notes
Sharing Evernote Notes creates so many efficiency. No need to add attachments to emails or copy and paste Evernote Note contents into an email. Evernote can Share notes in the following ways by clicking the share button above the toolbar on the right:
Post to Facebook
Post To Twitter
Post to Linkedin
Email Note
Gmail
Copy Share Note URL to Clipboard
Google+
Google drive
Google hangout
Access anywhere.
Find things fast.
1. Locate the note you want to share or transfer, and select the note.
BookWid


After complete the module, military language teaching faculty members should able to
Goal 1 - Create Evernote account
Goal 2 - Collect & transfer student's Proficiency data for analysis
Goal 3 - Analyze the collected data and provide recommendation to individual student to enhance student's proficiency
powered by
Piktochart
make information beautiful